



US009095396B2

(12) **United States Patent**  
**Collins et al.**

(10) **Patent No.:** **US 9,095,396 B2**  
(45) **Date of Patent:** **\*Aug. 4, 2015**

(54) **POROUS IMPLANT WITH NON-POROUS THREADS**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/561,831**

(22) Filed: **Jul. 30, 2012**

(65) **Prior Publication Data**

US 2013/0022943 A1 Jan. 24, 2013

**Related U.S. Application Data**

(63) Continuation-in-part of application No. 12/167,107, filed on Jul. 2, 2008, now Pat. No. 8,231,387.

(51) **Int. Cl.**  
**A61C 8/00** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **A61C 8/0012** (2013.01); **A61C 8/0016** (2013.01); **A61C 8/0018** (2013.01); **A61C 8/0022** (2013.01); **A61C 8/0013** (2013.01)

(58) **Field of Classification Search**  
CPC .. A61C 8/0012; A61C 8/0022; A61C 8/0016; A61C 8/0018; A61C 8/0013  
USPC ..... 433/172-176  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

1,929,425 A 10/1933 Hermann  
2,721,387 A 10/1955 Ashuckian

(Continued)

**FOREIGN PATENT DOCUMENTS**

CA 2506845 A1 7/2004  
CA 2506854 A1 7/2004

(Continued)

**OTHER PUBLICATIONS**

More about stainless steel retrieved from <http://www.thomasnet.com/about/stainless-steel-80230204.html> on Mar. 10, 2014.\*

(Continued)

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(57) **ABSTRACT**

A dental implant can include a shaft defining a longitudinal axis and having an apical end, a coronal end, and an exterior surface. A portion of the exterior surface can include a porous material. The dental implant can include at least one thread, including a non-porous material, having an interior surface and a bone-engaging surface. The interior surface can engage and wind around the exterior surface of the shaft and the bone-engaging surface can extend outwardly from the exterior surface of the shaft. The shaft can include one or more channels configured to communicate a flowable material, stored within the shaft, to the exterior surface. Each channel can include an opening at the exterior surface to release the flowable material. At least one channel can extend between a cavity of the shaft and the exterior surface and can optionally be angled toward the apical end.

**18 Claims, 4 Drawing Sheets**

